

AMENDMENTS TO THE CLAIMS

Please amend the claims by canceling claim 34 without prejudice; amending claims 1, 3, 7, 9-12, 17, 19, 20, 27 and 30-33, wherein matter to be deleted is shown in strikethrough and matter to be added is shown in underline; and adding new claims 35 as follows:

1. (currently amended) Apparatus for cleaning residue from a bore of a tube, comprising:

- a) a hose having a spray tip containing a plurality of orifices;
- b) a water source coupled to said hose and capable of delivering water to said hose at a pressure in excess of 1,000 psi; and
- c) a framework supporting i) transport means for extending and retracting said hose with a reciprocating motion along a longitudinal drive axis, ii) a reel having a hose storage space concentrically aligned to said longitudinal drive axis and whereat said hose is arranged in coils concentric to said drive axis ~~reel means for collecting and distributing said hose along a longitudinal drive axis common to each of said transport means and reel means and for layering said hose into coils concentric to said drive axis~~, and iii) means for rotating said transport means, whereby said hose and spray tip are rotated as they extend and retract along a bore of said tube to remove said residue.

2. (original) Apparatus as set forth in claim 1 including an operator control gun coupled to said framework and having a bore through which said hose is directed.

3. (currently amended) Apparatus as set forth in claim 2 wherein said operator control gun includes a plurality of air valves for directing the operation of said transport

means and said reel ~~means~~ and thereby the rotation and to and fro movement of said hose.

4. (original) Apparatus as set forth in claim 3 including a first air motor coupled to rotate said transport means and including a second air motor coupled to axially direct said hose.

5. (original) Apparatus as set forth in claim 1 including means for selectively regulating axial hose travel to a range of 2 feet per second to 10 feet per minute.

6. (original) Apparatus as set forth in claim 1 including means for selectively regulating the rotation of said transport means to a range of 10 to 400 RPM.

7. (currently amended) Apparatus as set forth in claim 1 including brake means for controlling the rotation of said reel ~~means~~ to prevent hose spillage and hose kinking.

8. (original) Apparatus as set forth in claim 7 wherein said brake means comprises a disk brake and caliper.

9. (currently amended) Apparatus as set forth in claim 1 wherein said reel ~~means~~ includes a hub mounted concentric to said longitudinal drive axis, a plurality of planar webs mounted to said hub in parallel alignment to said longitudinal drive axis and each having a channel, wherein the channels of said webs are aligned to define said storage space, and wherein said transport means includes a member for directing said hose to and from said storage space ~~the channel of said webs~~.

10. (currently amended) Apparatus as set forth in claim 9 ~~4~~ wherein said reel ~~means~~ includes a plurality of annular bands mounted to displace said webs apart from each other ~~said webs~~.

11. (currently amended) Apparatus as set forth in claim 1 wherein said reel ~~means~~ includes a hub mounted concentric to said longitudinal drive axis, a plurality of webs mounted to said hub in parallel alignment to said longitudinal drive axis and at least one endless shroud mounted to said webs, whereby said storage space is defined between said webs and said shroud, ~~to define a storage channel~~ and wherein said transport means includes a member for directing said hose to and from said storage space ~~channel~~.

12. (currently amended) Apparatus as set forth in claim 1 wherein said transport means includes a member for storing said hose at said reel in layered coils ~~directing said hose to and from said reel means and means for layering said hose at said reel in coils~~.

13. (original) Apparatus as set forth in claim 1 wherein said transport means includes a tensioner for controlling the contact force of said pinch wheels with said hose.

14. (original) Apparatus as set forth in claim 1 wherein said transport means includes a plurality of pinch wheels mounted to contact said hose and control means for directing the reciprocating axial movement of said hose in synchrony with the rotational movement of said hose.

15. (original) Apparatus as set forth in claim 14 wherein at least one of said plurality of pinch wheels is mounted to pivot relative to a stationary pinch wheel between a first condition whereat said pivoting and stationary pinch wheels are released from contact with said hose and a second condition whereat said pivoting and stationary pinch wheels grip said hose.

16. (original) Apparatus as set forth in claim 15 including a plurality of pivoting pinch wheels and means for resiliently biasing said plurality of pivoting pinch wheels.

17. (currently amended) Apparatus as set forth in claim 14 wherein each of said plurality of pinch wheels ~~includes~~ include a circumferential groove located to contain and direct the travel of said hose.

18. (original) Apparatus as set forth in claim 1 wherein said transport means includes a tensioner for selectively controlling the contact force of an idler pulley with a drive belt coupled to a drive motor between a non-contact position and a tensioned position.

19. (currently amended) Apparatus as set forth in claim 1 wherein said reel ~~means~~ is coupled to passively follow said transport means.

20. (currently amended) Apparatus for cleaning residue from a bore of a tube, comprising:

- a) a hose having a spray tip containing a plurality of orifices;
- b) a water source coupled to said hose and capable of delivering water to said hose at a pressure in excess of 1,000 psi;
- c) a framework supporting i) transport means including a plurality of pinch wheels mounted to contact and direct said hose along a longitudinal drive axis ~~said hose~~, ii) reel means having a storage space transversely oriented to said longitudinal drive axis for layering said hose into coils concentric to said longitudinal drive axis and distributing said hose along said longitudinal drive axis ~~collecting and distributing said hose along a longitudinal drive axis common to each of said transport means and reel means and for layering said hose into coils concentric to said drive axis~~, and iii) means for rotating said transport means; and

d) an operator control gun coupled to said framework and having a bore through which said hose is directed and control means for directing movement of said pinch wheels and a reciprocating axial movement of said hose in synchrony with a rotational movement of said hose, whereby said hose and spray tip are rotated as they extend and retract to remove residue from a bore of said tube.

21. (original) Apparatus as set forth in claim 20 wherein said transport means includes an arm for directing said hose onto said reel, wherein said reel means includes a plurality of planar members mounted to a plurality annular bands, wherein a tapered channel extends in each planar member at an acute angle relative to the longitudinal drive axis and wherein said hose is directed by said arm into and from said channel.

22. (original) Apparatus as set forth in claim 20 wherein at least one of said plurality of pinch wheels is mounted to pivot relative to a stationary pinch wheel between a first condition whereat said pivoting and stationary pinch wheels are released from contact with said hose and a second condition whereat said pivoting and stationary pinch wheels grip said hose.

23. (original) Apparatus as set forth in claim 20 including a brake for controlling the rotation of said reel means to prevent hose spillage and hose kinking.

24. (original) Apparatus as set forth in claim 20 wherein said transport means includes an air swivel for coupling control air signals between said operator gun and said framework to control the rotation of said transport means and axial movement of said hose at said transport means relative to said reel means.

25. (original) Apparatus as set forth in claim 20 wherein said transport means and said reel means are supported from and secured to bearing surfaces at said framework with interconnected clamped bearings.

26. (original) Apparatus as set forth in claim 20 wherein said reel means is coupled to passively follow said transport means.

27. (currently amended) Apparatus for cleaning residue from a bore of a tube, comprising:

- a) a hose having a spray tip containing a plurality of orifices;
- b) a water source coupled to said hose and capable of delivering water to said hose at a pressure in excess of 1,000 psi;
- c) a framework supporting i) a reel having a hose storage space ~~reel means for collecting and distributing said hose~~, ii) transport means having an air swivel and a plurality of pinch wheels mounted to contact and direct said hose along a said longitudinal drive axis and an arm for concentrically layering said hose into coils at said storage space about said longitudinal drive axis ~~on said reel means concentric to a longitudinal drive axis~~, and iii) means for rotating said transport means; and
- d) an operator control gun coupled to said framework and having a bore through which said hose is directed and control means for directing movement of said pinch wheels and a reciprocating axial movement of said hose in synchrony with a rotational movement of said hose, whereby said hose and spray tip are rotated as they extend and retract to remove residue from a bore of said tube.

28. (original) Apparatus as set forth in claim 27 wherein at least one of said plurality of pinch wheels is mounted to pivot relative to a stationary pinch wheel between

a first condition whereat said pivoting and stationary pinch wheels are released from contact with said hose and a second condition whereat said pivoting and stationary pinch wheels grip said hose.

29. (original) Apparatus as set forth in claim 27 wherein said transport means includes means for controlling the contact force of said pinch wheels with said hose.

30. (currently amended) Apparatus as set forth in claim 27 wherein said transport means and said reel ~~means~~ are supported from and secured to bearing surfaces at said framework with interconnected clamped bearings.

31. (currently amended) Apparatus as set forth in claim 27 including a disk brake mounted to said reel and means and ~~caliper for~~ controlling the rotation of said reel ~~means~~ to prevent hose spillage and hose kinking.

32. (currently amended) Apparatus as set forth in claim 27 wherein said reel ~~means~~ includes a hub mounted concentric to said longitudinal drive axis, a plurality of webs mounted to said hub in parallel alignment to said longitudinal drive axis and at least one endless shroud mounted to said webs to define said storage space ~~a storage channel~~ and wherein said arm directs said hose to and from said storage space ~~channel~~.

33. (currently amended) Apparatus as set forth in claim 27 including means for controlling said transport means and said reel to rotate in synchrony with each other and without hose spillage or hose kinking ~~wherein said reel means is coupled to passively follow said transport means.~~

Claim 34. (cancelled)

35. (new) Apparatus for cleaning residue from a bore of a tube, comprising:

a) a hose having a spray tip containing a plurality of orifices;

b) a water source coupled to said hose and capable of delivering water to said hose at a pressure in excess of 1,000 psi; and

c) a framework supporting i) transport means for extending and retracting said hose with a reciprocating motion, ii) a reel having a hose storage space concentrically aligned to a longitudinal drive axis common to each of said transport means and said reel and whereat said hose is layered into coils concentrically aligned to said longitudinal drive axis, and iii) means for rotating said transport means and said reel in synchrony with each other as said hose is collected and distributed, whereby said hose and spray tip are rotated as they extend and retract along a bore of said tube to remove said residue.